

May 15, 1990

Dear Manufacturer:

SUBJECT: CAFE Adjustment Coefficient for 1990 Model Year
Passenger Automobiles

This letter is notification that the passenger automobile Corporate Average Fuel Economy (CAFE) adjustment 'c' factor for the 1990 model year is 0.0010.

On July 1, 1985, EPA promulgated final rules which established CAFE adjustments for 1980 and later model year passenger automobiles (50 FR 27127). These adjustments were granted to compensate for the fuel economy effects of past test procedure changes and, thus, maintain the stringencies of the CAFE standards at their established levels.

The adjustment equation incorporates a coefficient, the 'c' factor, which is specific to the model year. For 1988 and later model years, EPA laboratory humidity is the only variable which determines the 'c' factor. (See the enclosure to this letter for the humidity correction factor calculation.) The 1989 calendar year EPA laboratory humidity data showed the average humidity level to be 49 grains per pound of dry air as measured by dew point hygrometer. This humidity level yields a calculated 'c' factor of 0.0010. This is the factor EPA will use in calculating final passenger automobile CAFE's for the 1990 model year. Manufacturers should also use this correction factor in calculating their 1990 model year passenger auto-mobile CAFE prior to EPA submission. Any questions or comments regarding the CAFE adjustment coefficient should be directed to Mr. Dave Good at (313) 668-4450.

Sincerely,

Robert E. Maxwell, Director
Certification Division
Office of Mobile Sources

Enclosure

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Calculation of the Passenger Automobile CAFE
Adjustment Coefficient for the 1990 Model Year

This enclosure presents the calculation of the passenger automobile Corporate Average Fuel Economy (CAFE) adjustment coefficient for the 1990 model year. The methodology detailed in the Summary and Analysis of Comments (hereafter referred to as the S&A) for the July 1, 1985 CAFE adjustment rulemaking (50 FR 27127) is used to calculate the laboratory humidity coefficient.

Laboratory Humidity Correction Coefficient Equation:

$$Ch = Sh(H75 - HMY)$$

where

Sh = Humidity Sensitivity Coefficient (for 1981 and later model years)

$$= -1.9 \times 10^{-4} / \text{grain H}_2\text{O}/\text{lb dry air}$$

H75 = Average Humidity in the 1975 model year (as measured by wet bulb psychrometer)

$$= 49 \text{ grains H}_2\text{O}/\text{lb dry air}$$

HMY = Average Humidity in grains H₂O/lb dry air for the model year of interest.

Since the humidity sensitivity coefficient and the average humidity in the 1975 model year are known, only the average humidity for the 1990 model year needs to be determined to calculate the correction coefficient for humidity. The average humidity was established as the average humidity of the EPA laboratory over a calendar year. This average humidity level must, however, be increased by 5 grains H₂O/lb dry air to make the current humidity measurements (which are taken with a dew point hygrometer) comparable with the 1975 model year measurements (which were taken with a wet bulb psychrometer).

Examination of EPA laboratory test data for the 1989 calendar year showed the average humidity level to be 49 grains H₂O/lb dry air as measured by dew point hygrometer. This corresponds to an

equivalent wet bulb psychrometer humidity level for the 1990 model year of 54 grains H₂O/lb dry air. Using this data, the adjustment 'c' factor was calculated to be 0.0010.

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